Foss Beach, Rye

BEACH WATER QUALITY REPORT
SUMMER 2004

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Healthy Swimming Through Clean Water

NHDES Beach Program (603) 271-3503

NEW HAMPSHIRE DEPARTMENT OF Environmental Services

BACKGROUND

The New Hampshire Department of Environmental Services (NHDES) has operated its Public Beach Inspection Program, or Beach Program, for over twenty years. Coastal beach monitoring began in 1989 and has continued through the present. NHDES recognizes the threat to public health at public beaches and continues to monitor public beaches throughout the state for the presence of pathogenic organisms. Coastal beaches are monitored for the presence of the fecal bacteria Enterococci. These fecal bacteria are present in the intestines of warm-blooded animals including humans. Fecal bacteria, when present in high concentrations and ingested, can commonly cause gastrointestinal illnesses such as nausea, vomiting and diarrhea. They are also known as indicator organisms, meaning their presence in water may indicate the presence of other potentially pathogenic organisms.

In October of 2000, the United States Environmental Protection Agency (EPA) signed into law the Beaches Environmental Assessment and Coastal Health (BEACH) Act. The BEACH Act is an amendment to the Clean Water Act that authorizes the EPA to award grants to eligible states. The purpose of the BEACH Act is to reduce the risk of disease to users of the nation's recreational waters. BEACH Act grants provide support for development and implementation of monitoring and notification programs that help protect the public from exposure to pathogenic microorganisms in coastal recreation waters.

NHDES received grant funding in 2002 to develop and implement a beach monitoring and notification program consistent with EPA's performance criteria requirements published in the *National Beach Guidance and Required Performance Criteria for Grants* document (www.epa.gov/waterscience/beaches/grants). NHDES has successfully met all requirements and continues to expand the monitoring and notification program. In 2002, only 9 coastal beaches were monitored, in 2003 fifteen coastal beaches and in 2004 sixteen coastal beach were monitored on a routine basis.

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Beach Description

Foss Beach is a rocky beach at high tide with a fine sand portion at low tide. Its total length is 3,750 feet. The beach is frequently used by residents and vacationers for recreational activities. There are 7 access points to the beach area from the roadside parking along Route 1A. Lifeguards are not present and sanitary facilities are unavailable.

Animals are not frequently seen at the beach. Dogs have been observed on occasion. The town of Rye prohibits dogs on public beaches during regular beach hours.

Below is a brief description of the sampling stations at Foss Beach, Rye. The stations are pictured in Figure 1.

- The left sample station is at the northern end of the beach off of Route 1A across from Washington Street. The sample is collected straight down from the rocky beach access ramp.

- The center sample station is in front of the dark grey house with a white porch and flagpole off of Route 1A. The sample is collected straight down from the wooden beach access ramp.

- The right sample station is collected straight down from the first rocky beach access ramp at the southern end of the beach off of Route 1A. The ramp is located before Ray's Seafood Restaurant.

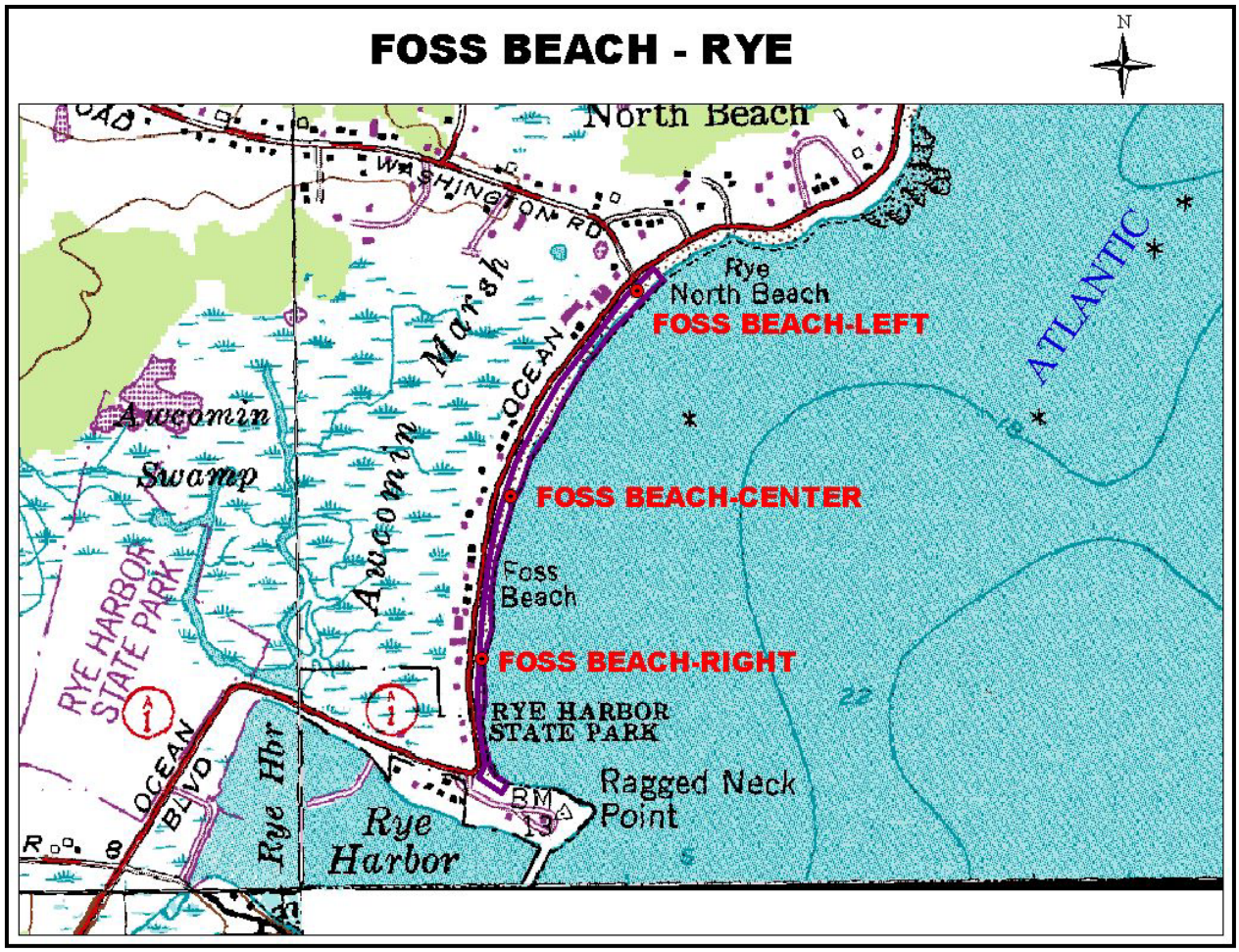

Figure 1. Map of Foss Beach

Tier Status and Sampling Frequency

The Beach Program developed a risk-based beach evaluation process and tiered monitoring approach and implemented this approach during the 2003 beach season. Beach evaluations are conducted annually to determine potential health threats to the public. Evaluations are based on several criteria in three main categories: beach history, microbial pathogen sources, and beach use. Based on these criteria, beaches are assigned either a Tier I or Tier II status. Tier I are high priority beaches that have an increased potential to affect public health while Tier II are low priority beaches that have less potential to affect public health. Beach sample frequency is based on the Tier statuses; Tier I beaches are sampled weekly and Tier II beaches are sampled every other week.

Foss Beach was categorized as a Tier II beach based on the Beach Program's Risk-Based Evaluation ranking system. This ranking indicates that the beach is less frequently used by the public and no significant potential pollution sources have been identified. The Foss Beach Tier II ranking has not changed since the ranking system was implemented.

Water Quality

Beaches are monitored to ensure compliance with State Water Quality Standards. Marine waters are analyzed for the presence of the fecal bacteria Enterococci. Enterococci are known as indicator organisms, meaning their presence may indicate the presence of pathogenic bacteria. The state standard for Enterococci at public beaches is 104 counts/100 mL in one sample, or a geometric mean of 35 counts/100 mL in three samples collected over sixty days. Standard exceedances require the issuance and posting of a beach advisory. Beach advisories remain in effect until subsequent beach sampling indicates safe water quality conditions.

The number of samples collected at each beach is determined by the beach length. Beaches less than 100 feet in length are sampled at left and right locations 1/3 of the distance from either end of the beach. Beaches greater than 100 feet in length are bracketed into thirds and sampled at left, center and right locations. Routine sample collection may be enhanced by sampling known or suspected pollution sources to the beach area. Also, storm event sampling may be conducted at beaches where wet-weather events are expected to affect beach water quality.

The 2004 sampling season began June 1st. June was cooler and drier than normal, July was cooler and wetter than normal, while August was warmer and wetter than normal. The sampling season encompassed 108 days, of which precipitation was recorded on 42 days (based on Seabrook WWTF recorded precipitation). Twenty beach days (normal beach hours are considered 9:00 a.m. to 5:00 p.m.) were directly affected by precipitation.

Foss Beach was sampled once every other week from June 1st through Labor Day. Three samples were collected at left, center and right stations (Figure 1). There were a total of eight routine inspections performed and 24 samples collected in 2004. One advisory inspection was performed after Enterococci levels exceeded state standards.

Table 1 includes Enterococci data from each sampling event in 2004. Overall, the Enterococci levels were among the lowest observed along New Hampshire's coastline. One advisory was issued for this beach on August 24, 2004. The left sample exceeded the state standard by greater than 70 counts, triggering a beach advisory. Subsequent samples indicated Enterococci levels had returned to normal and the advisory was removed. August 24th followed four days of precipitation totaling 3.76 inches (data obtained from Seabrook WWTF). There is no direct evidence correlating precipitation with bacteria at Foss Beach. Therefore, we cannot positively identify precipitation as the cause of elevated Enterococci levels.

Table 1. Foss Beach Enterococci Data 2004

Sample Date	Station Name	Results (counts per 100 mL)
06/02/2004	Foss Beach – Left	20
	Foss Beach – Center	<10
	Foss Beach – Right	10
06/16/2004	Foss Beach – Left	<10
	Foss Beach – Center	<10
	Foss Beach – Right	<10
06/30/2004	Foss Beach – Left	10
	Foss Beach – Center	<10
	Foss Beach – Right	<5
07/12/2004	Foss Beach – Left	<10
	Foss Beach – Center	<10
	Foss Beach – Right	<10
07/28/2004	Foss Beach – Left	<5
	Foss Beach – Center	<10
	Foss Beach – Right	<10
08/11/2004	Foss Beach – Left	<10
	Foss Beach – Center	<10
	Foss Beach – Right	<5
08/24/2004	Foss Beach – Left	280
	Foss Beach – Center	<10
	Foss Beach – Right	<10
08/27/2004	Foss Beach – Left	<10
	Foss Beach – Center	<10
	Foss Beach – Right	5

Figure 2 depicts the Enterococci data in relation to the state standard for coastal beaches.

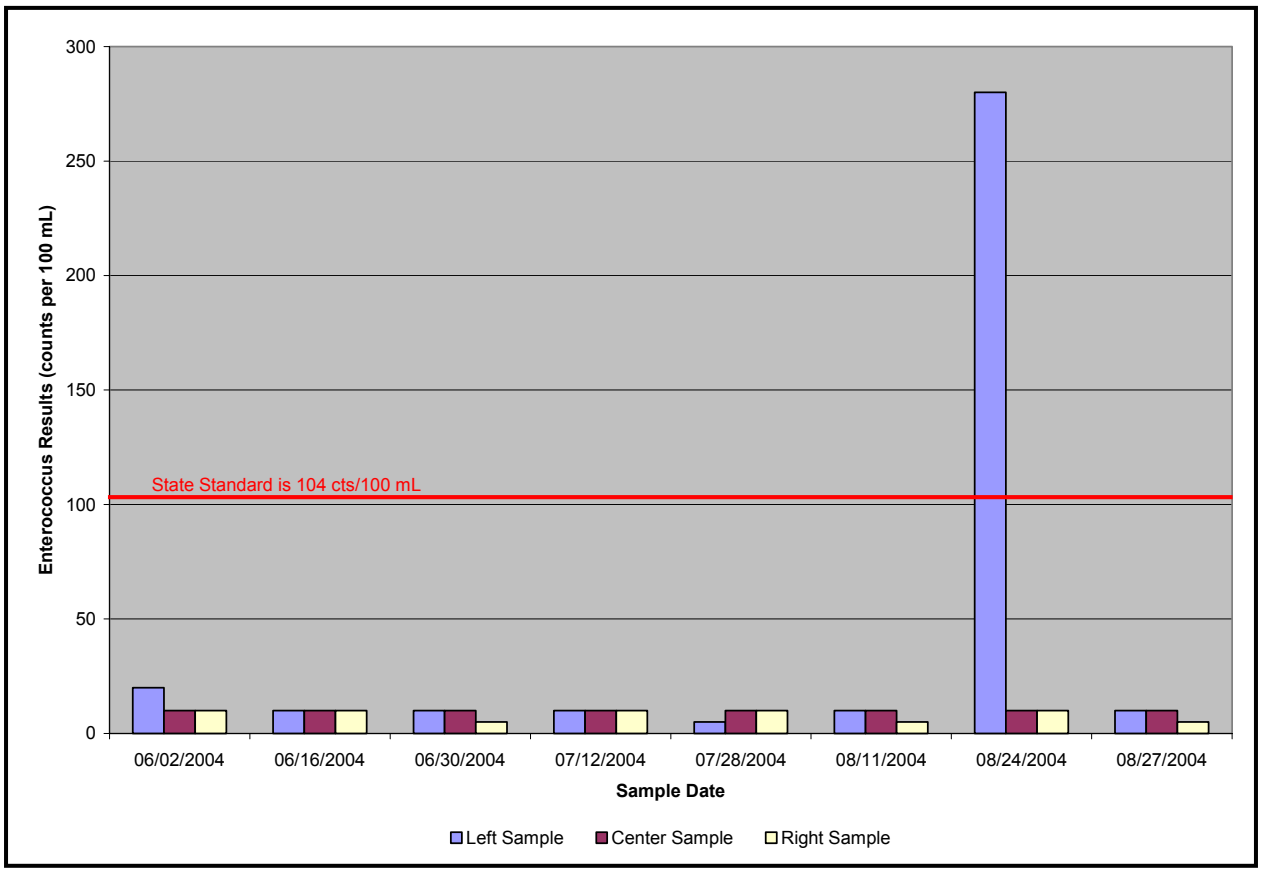

Figure 2. Foss Beach Enterococci Data 2004

The Beach Program staff analyzed whether a relationship exists between elevated Enterococci levels and precipitation at Foss Beach. Analyses of the data indicate no direct correlation. DES will continue to monitor precipitation data and Enterococci levels. Precipitation often causes elevated bacteria levels due to runoff in the watershed.

Areas of Concern

On two occasions this season, dogs were observed on the beach during beach hours. On one of those occasions the beach inspector stepped in dog feces. Dog feces are laden with bacteria that could be potentially harmful to human health. As long as visitors "pick up" after their dogs there is no concern. Pet wastes create a potential increase in bacteria concentrations in the swimming area. Also, young children might touch the feces when playing in the sand, which poses a potential health risk.

A large amount of marine debris and trash were observed along the rocky portion of the beach. Broken glass, lobster traps and fishing line have been observed and are a danger to the public.

Thoughts for the Future

- Beach management, local businesses, or school groups should consider joining NHDES' Adopt-a-Beach Program. The program would consist of beach clean-ups and water quality monitoring. DES would conduct training sessions and participate in education and outreach activities for the community. If you are interested, please contact Sara Sumner at 603-271-8803 or ssumner@des.state.nh.us.

- Beach management may consider installing trash receptacles for the public to dispose trash.

- Beach management may consider installing a trash bag dispenser so the public can "carry out" their trash and properly dispose it.